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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,725	08/13/2001	Randy E. Dewhirst	D-2550A/WOD	7156

7590 09/10/2002

William O'Driscoll - 12-1
The Trane Company
3600 Pammel Creek Road
La Crosse, WI 54601

EXAMINER

FLANDRO, RYAN M

ART UNIT	PAPER NUMBER
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3679

DATE MAILED: 09/10/2002

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/928,725

Applicant(s)

DEWHIRST ET AL.

Examiner

Ryan M Flandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Priority

Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows:

An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification or in an application data sheet (37 CFR 1.78(a)(2) and (a)(5)).

Specification

In regard to the specification, the title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. In the instant application, the claims appear to be directed to the spacer in the impeller assembly and should therefore reflect as much.

The disclosure is objected to because of the following informalities: Application 09/204,867 is not currently co-pending as noted at page 10 lines 2-3. Appropriate correction is required.

Further, the use of the trademark CENTRAVAC ® has been noted in this application at page 9 line 18. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

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Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "200" has been used to designate both the contoured spacer body shown in figure 4 and the modification of said spacer body in figure 6. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are further objected to because the spacer body shown in figure 5 is improperly labeled as item 232 (the spring). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 43 is objected to because of the following informalities: the word "have" in line 2 of the claim should be --having--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the ***first paragraph*** of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 47 and 48 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the

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art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 47 and 48, recitation of a "truncated end" on the "spacer body" is not supported in the specification. In figure 3, a truncated end 105 is shown on the front face 102 of impeller 40 but no such truncated end is disclosed on the spacer body 200. Therefore, undue experimentation would be required of one skilled in the art to make and/or use the claimed invention due to the numerous parameters involved.

The following is a quotation of the *second paragraph* of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 34-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 34, the recitation of a "recessed spring bearing surface" (recited at line 6 of the claim) is indefinite because the claims lack recitation of a spring. Accordingly, the Examiner has read the limitation as a --recessed surface--. Similarly, the recitation of a "spring spacing abutment" (recited at line 8 of the claim) is also indefinite because the claims lack recitation of a spring. Again, the Examiner has read the limitation as a --spacing abutment--.

With regard to claim 42, the recitation of a "spring spacing abutment" (recited at line 6 of the claim) is indefinite because the claims lack recitation of a spring. The Examiner has read the limitation as a --spacing abutment--. Also, the recitation of a "washer contact surface" (recited at

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line 7 of the claim) is indefinite because the claims lack recitation of a washer. Accordingly, the Examiner has read the limitation as a --contact surface--.

Similarly, with regard to claim 43, the recitation of a "spring spacing abutment" (recited at line 3 of the claim) is indefinite because the claims lack recitation of a spring (see above).

With regard to claim 45, it unclear whether the recited "recess" is the same as that recited in claim 43 or a separate and distinct recess.

Claim 46 recites the limitation "the front face" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim because no front face is previously recited.

Examiner notes, however, previous recitation of a "front surface" in claim 42 line 3.

Claim 47 recites the limitation "the front face" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim because no front face is previously recited.

Examiner notes, however, previous recitation of a "front surface" in claim 42 line 3.

Claim 48 recites the limitation "a spacer assembly" in line 2 of the claim. It is unclear whether the "spacer" referred to here is the same as that recited in line 1 of the claim. Further, it is unclear whether the contoured spacer body recited is the same as that recited in line 1 of the claim.

With regard to claim 49, the recitation of a "spring spacing abutment" (recited at lines 2 and 3 of the claim) is indefinite because the claims lack recitation of a spring (see above).

Claim 50 recites the limitation "the spacer of claim 45" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim because there is no recitation of a spacer in claim 45.

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With regard to claim 51, the recitation of a "recessed spring bearing surface" (recited at line 5 of the claim) is indefinite because the claims lack recitation of a spring. Accordingly, the Examiner has read the limitation as a --recessed surface--. Further, it is unclear what the difference is between the rear face and the rear surface.

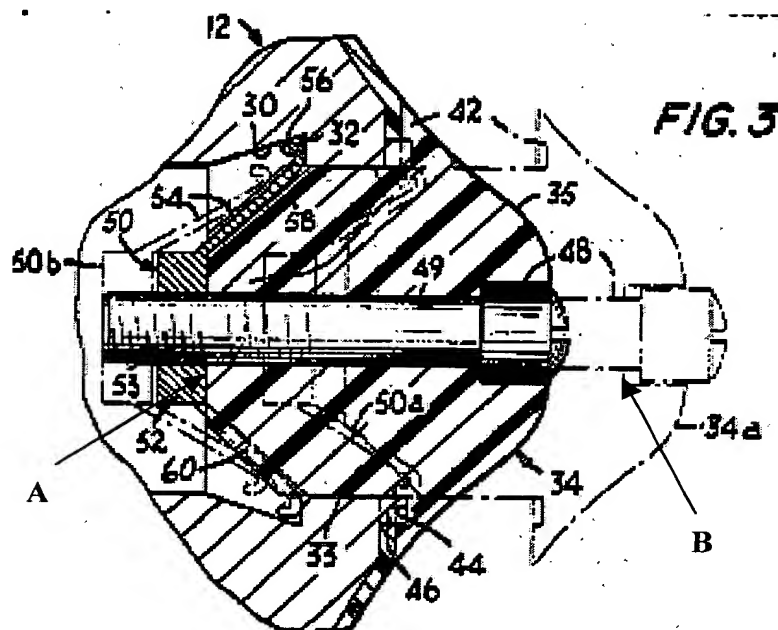
Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 34-53 are rejected under 35 U.S.C. 102(b) as being anticipated by Zoehfeld (US 3,387,768). With regard to claim 34, Zoehfeld discloses a spacer body **34** comprising a front face **35** having an aerodynamic contour (column 2 lines 41-44) symmetrically arranged about an axis; a rear face axially spaced from the front face (see generally figures 1 and 3); a recessed [spring bearing] surface **58** in the rear face; a spring spacing abutment **A** projecting in an axial direction from the bearing surface **58** (see edited figure 3 below); and a central bore **49** (see figure 3; column 2 line 57).



With regard to claim 35, Zoehfeld shows the front face 35 of the spacer body 34 as continuous from a radial extremity (outside of flanges 42) of the front face 35 to the axis (see figures 1 and 3).

With regard to claim 36, Zoehfeld shows the abutment A with at least one shoulder (intersection of abutment A and bearing recess 58).

With regard to claim 37, Zoehfeld shows the front face 35 of the spacer body 34 including a recess B (see edited figure 3 above).

With regard to claim 38, Zoehfeld shows an abutment A sized to control the axial load on an expensor 54 when the expensor 54 is located radially outward of the abutment A (see edited figure 3 above).

With regard to claim 39, Zoehfeld further shows the spacer body 34 having a second recess (see rear face of flanges 42 in figure 3).

With regard to claim 40, Zoehfeld shows the abutment **A** including a first shoulder radially spaced from the axis (intersection of abutment **A** and bearing recess **58**).

With regard to claim 41, Zoehfeld shows the abutment **A** including a second shoulder located proximal the axis (intersection of abutment **A** and center bore surface **49**) (see edited figure 3 above).

With regard to claim 42, Zoehfeld discloses a spacer for an impeller comprising a contoured spacer body **34** symmetrical about an axis and including a front surface **35** and a rear surface (see generally figures 1 and 3); the front surface **35** including a contoured surface at an angle or curve relative to the axis (see column 2 lines 41-44; figure 1 and 3); the rear surface including a spring spacing abutment **A** including a washer contact surface **A** at an end of the abutment **A** wherein the spring spacing abutment **A** is axially dimensioned relative to the axis so that a spacer assembly **52** contacting the abutment **A** defects at a desired amount (see edited figure 3 and column 3 lines 6-8).

With regard to claim 43, Zoehfeld further discloses the contoured spacer body **34** including a center portion having a recess **58** arranged in the rear surface about the spring spacing abutment **A** (see edited figure 3 above).

With regard to claim 44, Zoehfeld also discloses a central bore **49** running through the center portion symmetrical about the axis.

With regard to claim 45, Zoehfeld shows the front surface **35** including a recess **B** and a forward facing shoulder in the recess **B** (see edited figure 3 above).

With regard to claim 46, Zoehfeld further shows the recess **B** sized to ensure that the front [surface] **35** is seated flush across the central bore **49** in order to make a substantially continuous surface (see edited figure 3 above).

With regard to claims 47 and 48, Zoehfeld shows a truncated end in the front surface **35**.

With regard to claim 49, Zoehfeld further shows the body **34** having an aerodynamic portion **35** extending slightly around the spring spacing abutment **A** (see edited figure 3).

With regard to claim 50, Zoehfeld also shows the rear surface providing an outer shoulder (intersection of abutment **A** and bearing recess **58**) spaced radially outwardly and an inner shoulder (intersection of abutment **A** and center bore surface **49**) surface spaced radially inwardly (see edited figure 3 above).

With regard to claim 51, Zoehfeld discloses a spacer comprising a contoured spacer body **34** including a domed front end **35** and a rear surface where the spacer **34** is symmetrical about an axis; the domed front end **35** including a front face **35**, a rear face, and a recess spring bearing surface **58** in the rear face (see figures 1 and 3).

With regard to claim 52, Zoehfeld further shows the front face **35** including a recess **B** (see edited figure 3 above).

With regard to claim 53, Zoehfeld also discloses the front face **35** providing a continuous aerodynamic surface (see column 2 lines 41-44; figure 1 and 3).

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Applicant should note that this application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zoehfeld as applied to claim 51 above, further in view of Gilbert (US 3,604,487). Zoehfeld lacks disclosure of indents or holes in the domed front end **35** to allow a suitable tool bit to attach to the aerodynamic surface. Gilbert, however, teaches such indents **19** in the domed front end **17** to allow a suitable tool **11** to attach to the aerodynamic surface **35** (see figures 1 and 2; column 2 lines 20-44. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include indents or holes in the domed front end to allow a suitable tool bit to attach to the surface as taught by Gilbert.

Conclusion

In accordance with MPEP §§ 609, 707.05, and 2001.06 (b), the prior art cited in the parent application was reviewed prior to the preparation of this Office action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to a spacer (generally) or a spacer for an impeller assembly:

U.S. Patent 5,211,013 to Bonde et al.

U.S. Patent 5,100,291 to Glover

U.S. Patent 4,303,362 to Lockhart

U.S. Patent 4,022,536 to Piepho et al.

U.S. Patent 3,572,967 to Schreter

U.S. Patent 5,503,521 to Capon

U.S. Patent 954,073 to Bender

U.S. Patent 4,539,874 to Jacovitz

EP 0 368 723 to LaGrange

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan M Flandro whose telephone number is (703) 305-6952.

The examiner can normally be reached on 8:30am - 5:30pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H Browne can be reached on (703) 308-1159. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 872-9326 for regular communications and (703) 872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

Ryan M Flandro
September 6, 2002



Greg Binda
Primary Patent Examiner
Technology Center 3670